

Work Order ID 103500

103500

Page 1

June-24-13 1:56:59 PM

Item ID: D4407-3

Accept

N9000040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Bar

Start Date: 7/04/13 Start Qty: 12.00

12

Cust Item ID:

Required Date: 7/05/13 Req'd Qty: 12.00

12

Customer:

Reference:

Approvals: Process Plan: MLJ Date: 13-06-26

Tooling:

Date:

Run Start *NR1*

QC:

Date:

SPC (Y/N):

Date:

Stop *NR2*

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

Draw Nbr

Revision Nbr

D4407

C

100

0.00

100

Cold Saw

Memo

0.00

Hyd Mech

Cut blanks at 58.75"

102 SL13-6-27

110

0.00

110

HAAS 1

Memo

0.00

HAAS CNC vertical machine #1

1-Mill as per folio FB082 & dwg D4407,

FOLIO REV: AA

DWG REV: C

2-Deburr as required

EXTRA MATERIAL WILL BE CUT AT ASSEMBLY (D4406-043)

102 SL13-6-27

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

| | | | | | | | | | | | | | | | | | | |
|--|--|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
| Work Order: _____ Part No. _____ NCR No. _____ | DISPOSITION Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Suspected Unapproved <input type="checkbox"/> | AGAINST DEPARTMENT/PROCESS <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table> | Skid-tube <input type="checkbox"/> | Crosstube <input type="checkbox"/> | Water Jet <input type="checkbox"/> | Engineering <input type="checkbox"/> | Machining <input type="checkbox"/> | Small Fab <input type="checkbox"/> | Prod. Eng. Coord. <input type="checkbox"/> | Quality <input type="checkbox"/> | Thermoforming <input type="checkbox"/> | Finishing <input type="checkbox"/> | Rec/Store/Packaging <input type="checkbox"/> | Other <input type="checkbox"/> | Large Fab <input type="checkbox"/> | Composite <input type="checkbox"/> | Supplier <input type="checkbox"/> | |
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| Root Cause | Date | Step | Qty | Description of work order update or non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---------------|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Design | | | | | | | | | |
| Doc/Data | | | | | | | | | |
| Equip/Tooling | | | | | | | | | |
| Handling/Pre | | | | | | | | | |
| Material | | | | | | | | | |
| Operator | | | | | | | | | |
| Offset/Setup | | | | | | | | | |
| Process | | | | | | | | | |
| Supplier | | | | | | | | | |
| Training | | | | | | | | | |
| Transport | | | | | | | | | |
| Unapproved | | | | | | | | | |

FAULT CATEGORY

| | | | |
|--|--|---|--|
| Landing Gear <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric <input type="checkbox"/> Cracks <input type="checkbox"/> Crimp/Kink/Ripple/Wave <input type="checkbox"/> Cuffs <input type="checkbox"/> Crushing <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Marks/Chatter <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube | General <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damage/Defect <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drawing <input type="checkbox"/> Drill Holes <input type="checkbox"/> Finish <input type="checkbox"/> Fit/Function | <input type="checkbox"/> Folio/Program <input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete/Unqualified <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Misaligned/off center <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Off-set <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence | <input type="checkbox"/> Outside Dimensions <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other |
|--|--|---|--|

Work Order ID 103500

103500

Page 2

June-24-13 1:56:59 PM

Item ID: D4407-3

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Bar

Start Date: 7/04/13 Start Qty: 12.00

12

Cust Item ID:

Required Date: 7/05/13 Req'd Qty: 12.00

12

Customer:

Reference:

Run Start *NR1*

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Stop *NR2*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

| Sequence ID/ Work Center ID | Operation Description | Set Up/ Run Hours | Tool ID | Tool # | Plan Code | Accept Qty | Reject Qty | Reject Number | Insp. Stamp |
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|
|--------------------------------|--------------------------|----------------------|---------|--------|--------------|---------------|---------------|------------------|----------------|

120 QC2- Inspect parts off machine FAI/FAIB

0.00

120

QC

Memo

0.00

Quality Control

130 QC8- Inspect parts - second check

0.00

130

QC

Memo

0.00

Quality Control

140 Identify as per dwg & Stock Location: W0001

0.00

140

Packaging

Memo

0.00

Packaging

(12) 212 13-07-02

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

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| Root Cause | Date | Step | Qty | Description of work order update or non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
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| Doc/Data | | | | | | | | | |
| Equip/Tooling | | | | | | | | | |
| Handling/Pre | | | | | | | | | |
| Material | | | | | | | | | |
| Operator | | | | | | | | | |
| Offset/Setup | | | | | | | | | |
| Process | | | | | | | | | |
| Supplier | | | | | | | | | |
| Training | | | | | | | | | |
| Transport | | | | | | | | | |
| Unapproved | | | | | | | | | |

FAULT CATEGORY

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|--|--|---|--|

Work Order ID 103500

103500

Page 3

June-24-13 1:56:59 PM

Item ID: D4407-3

Accept

N900040100

Setup Start *NS1*

Revision ID:

Stop *NS2*

Item Name: Bar

Start Date: 7/04/13 Start Qty: 12.00

12

Cust Item ID:

Required Date: 7/05/13 Req'd Qty: 12.00

12

Customer:

Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

Run Start *NR1*

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Stop *NR2*

Sequence ID/
Work Center ID

Operation
Description

Set Up/
Run Hours

Tool ID

Tool #

Plan
Code

Accept
Qty

Reject
Qty

Reject
Number

Insp.
Stamp

150

QC21- Final Inspection - Work Order Release

0.00

150

QC

Memo

0.00

Quality Control

13/7/14
MF
13-7-02

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

| | | | | | | | | | | | | | | | | | | |
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| Root Cause | Date | Step | Qty | Description of work order update or non-conformance | Initial Chief Eng | Action Description | Sign & Date | Verification | QC Inspector |
|---------------|------|------|-----|---|-------------------|--------------------|-------------|--------------|--------------|
| Design | | | | | | | | | |
| Doc/Data | | | | | | | | | |
| Equip/Tooling | | | | | | | | | |
| Handling/Pre | | | | | | | | | |
| Material | | | | | | | | | |
| Operator | | | | | | | | | |
| Offset/Setup | | | | | | | | | |
| Process | | | | | | | | | |
| Supplier | | | | | | | | | |
| Training | | | | | | | | | |
| Transport | | | | | | | | | |
| Unapproved | | | | | | | | | |

FAULT CATEGORY

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| <input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Set-up <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled <input type="checkbox"/> Other | | |

Picklist Print

June-24-13 1:56:58 PM

Page 1

Work Order ID: 103500

Parent Item: D4407-3

Parent Item Name: Bar

Start Date: 7/04/13

Required Date: 7/05/13

Start Qty: 12.00

Required Qty: 12.00

Comments: IPP revA 11.06.06 new issue EC verified by:DD
verified by:JLM

IPP revB 12/02/13 new issue JFS

| Component Item ID/ Item Name | Replacement Item ID | Mfg/ Purch | Bin Item | Primary Location | Last Location | Route Seq ID | Unit of Measure | Qty on Hand | Qty per Kit | Total Qty | Qty Issued | Date Issued | Status |
|---|------------------------|---------------|-------------|---------------------|------------------|-----------------|--------------------|----------------|-------------|--------------|---------------|----------------|--------|
| M304B0.250x0.500 304 BAR .250 x .500 | | Purchased | No | | | 100 | f | 180.4550 | 4.843 | 61.174736 | | 5/13-6-27 | |

Location

Loc Qty

Loc Code

MAT049

180.455

124518

53.855

m125804 X10

126.6

485

M126151 x 12'

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

| | | | | | | | | | | | | | | | | | | |
|--|--|---|--------------------------------------|------------------------------------|------------------------------------|--------------------------------------|------------------------------------|------------------------------------|--|----------------------------------|--|------------------------------------|--|--------------------------------|------------------------------------|------------------------------------|-----------------------------------|--|
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| Supplier | | | | | | | | | |
| Training | | | | | | | | | |
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FAULT CATEGORY

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|--|--|---|--|

| | | |
|-----------------------|--------|----------------------|
| DART AEROSPACE LTD | | Work Order: 103500 |
| Description: bar | | Part Number: DH407-3 |
| Inspection Dwg: DH407 | Rev: C | Page 1 of 1 |

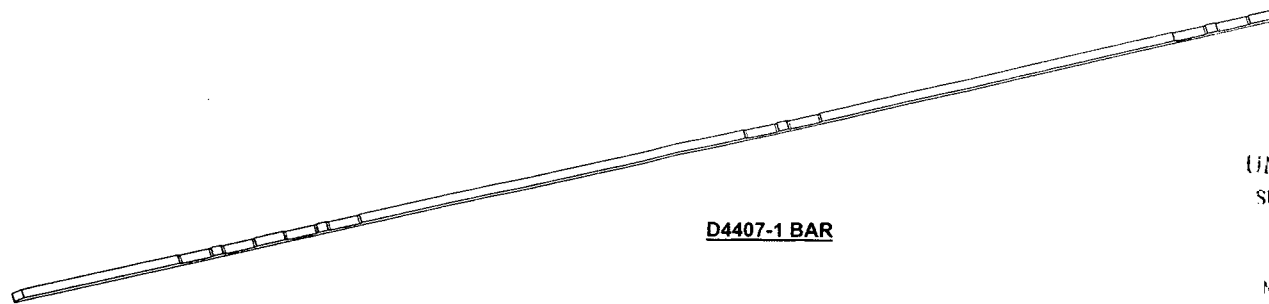
FIRST ARTICLE INSPECTION CHECKLIST

| Drawing Dimension | Tolerance | Actual Dimension | Accept | Reject | Method of Inspection | Comments |
|-------------------|-----------|------------------|--------|--------|----------------------|----------|
| - .50 | ± .03 | - .502 | / | | Vern | SL-10 |
| .25 | | .252 | / | | - | |
| 1.50 | | 1.50 | / | | - | |
| 12.75 | | 12.75 | / | | mtape | |
| 24.00 | | 24.00 | / | | | |
| 30.00 | | 30.00 | / | | | |
| 36.00 | | 36.00 | / | | | |
| 41.25 | | 41.25 | / | | | |
| 46.50 | | 46.50 | / | | | |
| 51.75 | | 51.75 | / | | | |
| 57.62 | | 57.62 | / | | | |
| -10 | | -100 | / | | Vern | SL-10 |
| -18 | | -181 | / | | | |
| 4.00 | | 4.00 | / | | | |
| - .50 | | .50 | / | | | |
| 1.75 | | 1.75 | / | | | |
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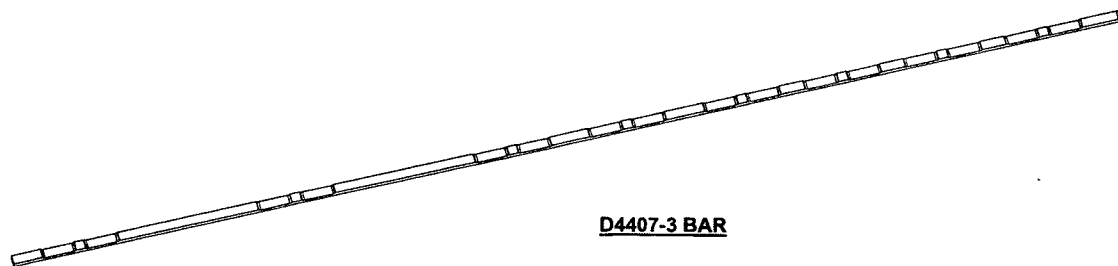
| | | |
|-----------------|----------------|-----------------------|
| Measured by: SL | Audited by: Jm | Preliminary Approval: |
| Date: 13-6-27 | Date: 13/06/28 | Date: |

| Rev | Date | Change | Revised by | Approved |
|-----|----------|----------------------------|------------|----------|
| E | 10.04.14 | Added preliminary approval | KJ | |

10.04.15



D4407-1 BAR



D4407-3 BAR

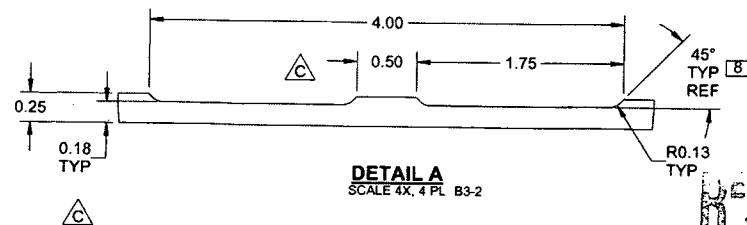
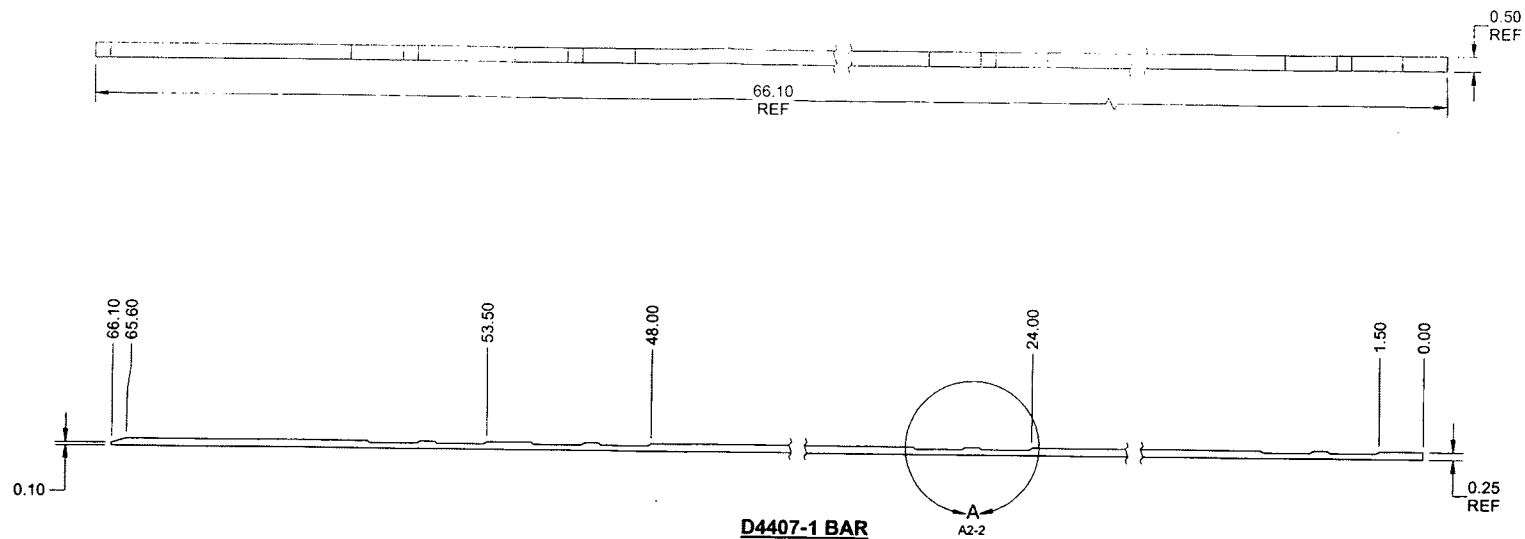
NEW ISSUE
 REDESIGNED
 ENGINEERING
 UNCONTROLLED COPY
 SUBJECT TO REVIEW
 WITHIN 30 DAYS
 WORK ORDER
 NO. 103500 MLO

13-06-26

RELEASED
 2013-03-21

| | | | |
|------------|---|--|--------------|
| C | REDESIGNED WITH SHORTER CUTS. NOTE 8 ADDED. B4-2, B4-3 0.18 WAS 0.13 (REF NCR12-2031) | AJS | 13.03.11 |
| B | REMOVE TOOLING HOLES FOR -1/-3; RE-DESIGN D4407-3 | RF | 12.01.30 |
| A | NEW ISSUE | RF | 11.08.15 |
| REV. | DESCRIPTION | BY | DATE |
| DESIGN | RF | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | AJS | | |
| CHECKED | JP | DRAWING NO. | REV. C |
| MFG. APPR. | JP | D4407 | SHEET 1 OF 3 |
| APPROVED | JP | TITLE | SCALE |
| DE APPR. | JP | BAR | NTS |
| DATE | 13.03.11 | COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR REPRODUCED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD. | |

103500



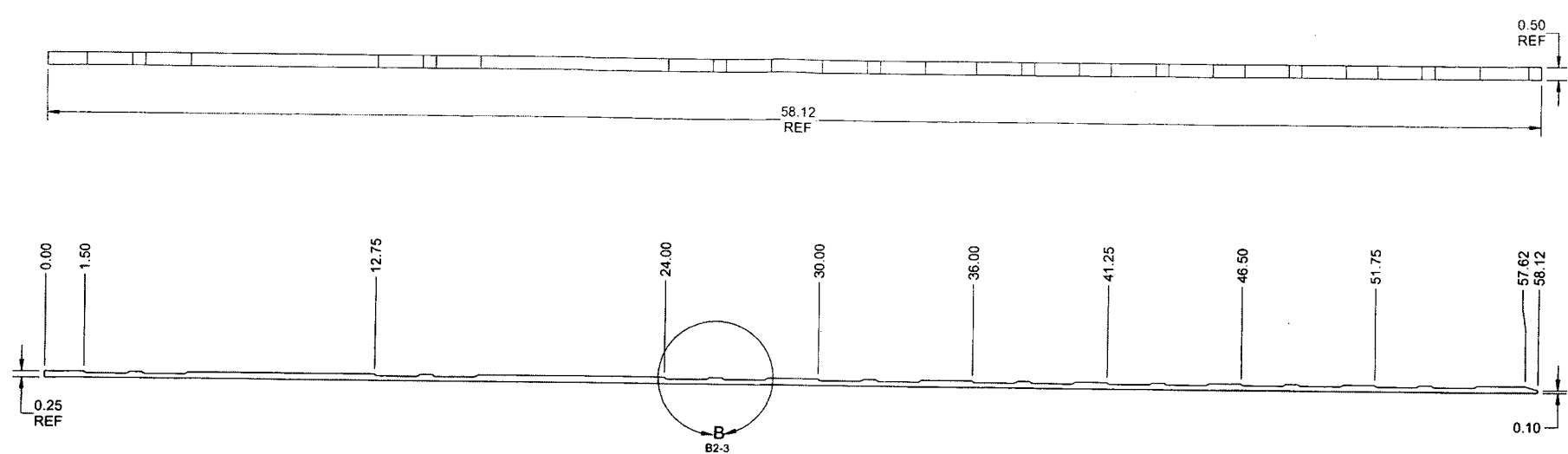
NOTES:

- 1) MATERIAL: AISI 304/316 STAINLESS STEEL, 0.250 x 0.500 BAR
PER ASTM A276 OR ASTM 240
REF. DART SPEC. M3043
- 2) FINISH: NONE
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: = 2.25 lbs
- 8) ANGLE TO BE DETERMINED BY AVAILABLE TOOLING

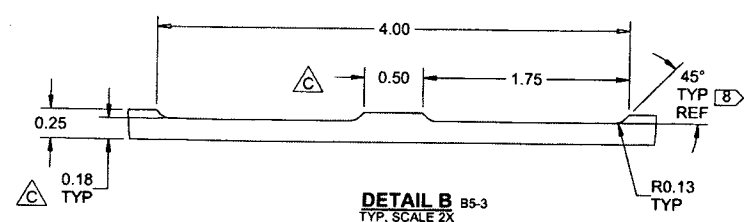
RELEASED
2013-03-21

| | | | |
|------------|----------|--|--------------|
| DESIGN | RF | DART AEROSPACE LTD | |
| DRAWN | AJS | HAWKESBURY, ONTARIO, CANADA | |
| CHECKED | | DRAWING NO. | REV. C |
| MFG. APPR. | | D4407 | SHEET 2 OF 3 |
| APPROVED | | TITLE | SCALE |
| DE APPR. | | BAR | NTS |
| DATE | 13.03.11 | <small>COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.</small> | |

103500



D4407-3 BAR



RELEASED
2013-03-21
WNR

- NOTES:
- 1) MATERIAL: AISI 304/316 STAINLESS STEEL, 0.250 x 0.500 BAR
PER ASTM A276 OR ASTM 240
REF. DART SPEC. M304B
 - 2) FINISH: NONE
 - 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
 - 4) UNITS: INCHES UNLESS OTHERWISE NOTED
 - 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
 - 6) IDENTIFICATION: NONE
 - 7) WEIGHT: = 1.82 lbs
 - 8) ANGLE TO BE DETERMINED BY AVAILABLE TOOLING

| | | | |
|------------|----------|---|--------------|
| DESIGN | RF | DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA | |
| DRAWN | AJS | | |
| CHECKED | | DRAWING NO. D4407 | REV. C |
| MFG. APPR. | | TITLE BAR | SHEET 3 OF 3 |
| APPROVED | | SCALE | NTS |
| DE APPR. | | <small>COPYRIGHT © 2011 BY DART AEROSPACE LTD THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD</small> | |
| DATE | 13.03.11 | | |